proposed for it the generic name of *Gyrococcus,* and owing to the striking flaccidity of caterpillars dying as a result of its presence, we have selected the specific name *flaccidifex.*

A much more detailed account of our work will be published later.

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Bussey Institution,
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July 22, 1912

THE PROLIFICNESS OF GAMBUSIA

On June 3, 1912, there was received at the aquarium of the Bureau of Fisheries in Washington a lot of top minnows (*Gambusia affinis*) from the lower Potomac River, comprising several males and about 90 females heavy with young. On June 7, the expulsion of the young began, and by June 27 all the females had become spent.

The viviparity, the relative scarcity of males, the great disparity in the size of the sexes and various other facts regarding this species are well known, although I have been able to find no adequate account of some of the most interesting phases of its life history. The principal object of this note is to call attention to the remarkable prolificacy of this little fish, which probably has few parallels among viviparous vertebrates.

The young are expelled in lots of 1 to 5 at short intervals, and the entire brood is delivered in the course of one and a half to three hours. The young swim readily and actively immediately after expulsion. Their length at birth is 8 to 9 mm. The progeny of one mother fish forms a very sizable school; and it was this that suggested the taking of an accurate family census. On one moribund fish 5 cm. long, that had apparently succumbed from inability to expel her young, a Cesarian operation was performed, and 33 living and 51 dead embryos were taken. Other fish 4.5 to 5 cm. long were killed, and counts of the fully developed young were made, the numbers ranging from 85 to 134, the average for all fish examined being exactly 100.

The production of two broods in a season has been suggested by the fact that young are born in spring and also in late summer. This may indicate only a protracted breeding season; but in the fish now under observation there are conspicuous ova which might easily reach full development in six to eight weeks, and fish from the same locality which I examined 22 years ago contained large embryos on August 11. If there are later broods, as I am now inclined to believe, this might account for the marked difference in the average number of young ascertained to be produced by fish observed in June, 1912, and by fish of same size and from same stream in August, 1890, the average for the former being 100 and for the latter 24 (the extremes being 18 and 30). Inasmuch as a second lot of ova would have to attain a certain degree of development while the abdomen was crowded with embryos, it might easily happen that fewer eggs would come to maturity and be fertilized than in the case of the first brood. This may afford a clue to the statement of the late Professor Ryder that "viviparous forms like the cyprinodonts have comparatively few ova, and the number may be as few as 15 or 20 in such a form as *Gambusia.*"[1]

An interesting observation is the cannibalistic tendency of the parent fish. Notwithstanding other food was present, the adults showed a pronounced fondness for their offspring, and began to feed on them soon after they were born. In order to save the young, it was necessary to retain the adults in a wire cage through the meshes of which the young could escape into the aquarium. One fish 4.8 cm. which was transferred to a special receptacle produced 85 living, healthy young, and devoured about half of them during the second night. Another fish that was under observation chased assiduously her first born as soon as it was expelled.

H. M. Smith

Washington, D. C.,
July 1, 1912

[1] Bull. U. S. Fish Comm., 1883, p. 196.